REMARKS

Claims 1-19 have been cancelled with out prejudice and Claims 20-36 have been added in place thereof.

Claims 20-31 are drawn to the same subject matter as the previously elected and now cancelled claims 1-14. As stated by the examiner the subject matter of these claims is: an isolated nucleic acid molecule encoding a delta 12-fatty acid epoxygenase enzyme, a chimeric gene, the chimeric construct, a vector, a host cell or a transgenic plant comprising of said nucleic acid, classified in class 536, subclass 23.1, for example.

Claims 32-36 are drawn to the same subject matter as the previously non-elected and now cancelled claims 15-19. These claims as stated by the examiner are directed to: a method for producing delta 12-epoxy fatty acids, or wherein method comprises transforming microbial or a plant cell with chimeric gene encoding delta-12 epoxy fatty acid epoxygenase enzyme, classified in class 800, subclass 281, for example.

There is also support for the newly added claims in the specification, as for example in Example 6, in which sequence similarity to the *Stokesia laevis* delta 12-epoxygenase gene is used to isolate analogues, homologs and derivatives of the delta 12-epoxygenase gene, using probes that are specific for the *Stokesia laevis* delta 12-epoxygenase gene and high stringency hybridization and wash conditions.

Applicant respectfully reserves the right to have rejoined the claims drawn to the method for producing delta-12 epoxy fatty acids, upon allowance of the product claims.

No new matter has been added by these amendments to the claims.

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings include deletion of figures with sequences that are included in the sequence listing. These sheets, which include Figures1A-1C, 2A-2D and 3A-3B, replace the drawings filed January 20, 2004. Figures1A-1C, 2A-2D and 3A-3B have been resubmitted in compliance with 37 CFR §1.83(a).

Attachments: Replacement Sheets for Figures 1A-1C, 2A-2D and 3A-3B.

1. Formal Matters

1.1 Information Disclosure Statement

The Examiner did not consider Document No. EP0267159A2 as included in IDS form 1449 filed on 5/14/2004 because an English translation was not provided. An English translation of the abstract of the document has been provided herein.

The Examiner did not consider Document No. EP0674725B1 because the IDS failed to identify Patentee or Applicant of the cited document. 37 CFR §1.98(b)(4) states:

> (4) Each foreign patent or published foreign patent application listed in an information disclosure statement must be identified by the country or patent office which issued the patent or published the application, an appropriate document number, and the publication date indicated on the patent or published application.

Applicants respectfully submit that all the information necessary to comply with 37 CFR §1.98(b)(4) was provided, including the patent office which issued the patent, the patent number and the publication date indicated on the patent in the IDS form 1449 filed 5/14/2004.

Accordingly, applicant respectfully requests consideration of Document No. EP0267159A2 and Document No. EP0674725B1 as submitted in the IDS form 1449 included in this response.

1.2 Specification

The disclosure is objected to as failing to include an –e— between "R" and "combinant" in the title on Page 1. Applicant respectfully disagrees with this objection as the title on Page 1 does include an –e—.

The abstract of the disclosure is objected to. The Applicants have corrected this matter in the Amendments to the Specification.

1.3 Drawings

The Examiner objected to the drawings as failing to comply with 37 CFR §1.83(a). Applicants have removed previous Figures 1 and 2, and renumbered the drawings. Corrected drawings are included in this response.

2. Claim Objections

It is respectfully submitted that the claim objections are moot in light of the claim amendments.

3. Rejections under 35 U.S.C. § 112

3.1 35 U.S.C. § 112 Second Paragraph

The Examiner rejected claims 1-14 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter. Specifically, Examiner argues that the term "analogue" is confusing as it is unclear how a nucleotide sequence comprising non-nucleotide constituents would encode a polypeptide.

Applicants respectfully submit that the use of the term "analogue" is well known to a person having ordinary skill in the art to denote a nucleotide sequence in which one or more substitutions of amino acids occurs but the function of the proteins encoded by the nucleotide sequence is maintained. An example of such an occurrence is the methylation of an amino acid, which does not affect the function of the proteins encoded by the nucleotide sequence.

Furthermore, the Examiner argues that the term "derivative" is confusing because it is unclear what is retained in the derived product.

The Examiner also suggests that the term "complement" be amended and rejects claims 7-9, 12 and 14-15 for lack of antecedent basis for the limitation "coding sequence".

It is respectfully submitted that all of these objections are rendered moot by the amendments to the claims.

3.2 35 U.S.C. § 112 First Paragraph

Enablement

The Examiner rejected claims 1-14 under 35 U.S.C. § 112, first paragraph alleging that the specification fails to reasonably provide enablement for a nucleic acid as claimed in original claims 1-14. The Examiner argues that the specification does not provide guidance for a method of using a nucleic acid molecule encoding a delta 12-fatty acid epoxygenase enzyme and comprising an amino acid sequence which has at least 80% sequence identity to SEQ ID NO:2.

Applicants respectfully disagree with the examiners conclusion. However, in order to expedite prosecution the claims have been amended as discussed above.

Moreover, as shown in Example 6 on pages 17 and 18 of the specification, the isolation of an analogue, homolog or derivative of *Stokesia laevis* delta 12-epoxygenase gene is conducted using probes that are specific for the gene, using high stringency hybridization and wash conditions. Thus, Example 6 clearly provides reasonable enablement for the instant claims.

The Examiner further argues as to claim 12, (now claim 29), that the specification does not provide guidance for a method of using a transformed host cell other than a bacterial or plant cell with a nucleic acid molecule encoding a protein of SEQ ID NO:2.

Applicants respectfully disagree. The skilled artisan will instantly recognize that the techniques disclosed to transform bacterial and plant cells would have been applicable to other host cells, such as viruses, yeast, and animal cells, which are routinely used in the art. Moreover,

the application discloses expression of fatty acid modifying enzymes in yeast cells on page 3 of the specification.

In addition, applicants have included 37 C.F.R. 1.132 declarations stating that applicants conducted experiments in yeast cells and observed epoxy fatty acid formation when the yeast host cells were transformed with the *Stokesia* epoxygenase gene. These experiments are detailed in the Journal Article "Expression of a *Stokesia* laevis epoxygenase gene" see Hatanaka *et al.*, Phytochem. 2004 pages 1-7, attached herewith of which applicants are co-authors. The article clearly discloses methods of transforming yeast host cell with a nucleic acid molecule encoding a protein of SEQ ID NO:2, see Hatanaka et al.; Phytochem. 2004 page 6.

The Examiner argues as to claim 14, (now claim 31), that the specification does not provide guidance for a method of using a nucleic acid encoding SEQ ID NO:2 to produce transgenic tissues other than seed with epoxygenase activity. However, the Examiner concedes that the specification does provide guidance on using SEQ 1 ID No. 1 encoding SEQ ID NO:2 to increase epoxy fatty acids in plant seeds.

Applicants respectfully disagree with the Examiner's position in regards to transgenic tissue; however the claim has been amended and the applicants respectfully submit that the rejection is now moot.

Written Description

The Examiner rejected claims 1-14 under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirement, asserting that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor at the time the application was filed, had

possession of the invention. Applicants respectfully disagree with the examiner's conclusion. However, in order to expedite prosecution the claims have been amended as discussed above.

Specifically, the Examiner asserts that the instant specification does not have adequate description for the genus of sequences which have at least 80% sequence homology or identity to SEQ ID NO:2, genus or sequences comprising homologues, analogues, or derivatives of SEQ ID NO:2.

Claim 20 recites, an isolated nucleic acid molecule encoding a delta 12-fatty acid epoxygenase enzyme comprising a member selected from the group consisting of:

(a) the nucleic acid molecule having the sequence of SEQ ID NO:1; and

(b) the complement of an isolated nucleic acid molecule which hybridizes under high stringency conditions to a nucleotide sequence having the sequence of SEQ ID NO:1, wherein said nucleic acid molecule encodes a protein having at least 90% identity to SEQ ID NO:2 and wherein said protein has epoxygenase activity.

The instant specification discloses in Example 6 on pages 17 and 18 of the specification, the isolation of an analogue, homolog or derivative of *Stokesia laevis* delta 12-epoxygenase gene is conducted using probes that are specific for the gene, using high stringency hybridization and wash conditions. A person having reasonable skill in the art would understand that the use of high stringency conditions as described in Example 6 clearly discloses nucleic acid molecule encoding a protein having at least 90% identity to SEQ ID NO:2. As such the specification clearly discloses that Applicants has possession of the invention as claimed. Thus, Example 6 clearly provides written description for the instant claims.

Furthermore, the Examiner asserts that the structures of claimed genus, are not correlated to the function of epoxygenase activity when expressed in a plant. The instant claims recite

isolated nucleic acid molecules encoding a delta 12-fatty acid epoxgenase enzyme, wherein the nucleic acid molecule encodes a protein having at least 90% identity to SEQ ID NO:2 and wherein said protein has epoxygenase activity. As explained throughout the specification, including in Example 6 on pages 17 and 18 of the specification, the presently claimed invention correlate to the function of epoxgenase activity when expressed in a plant, namely altered levels of fatty acids.

Further, the Examiner alleges that the specification does not describe conserved functional domains that are shared by the structures of the claims.

Applicant respectfully disagrees with the examiner's conclusion. The specification teaches the use of probes that are specific for the *Stokesia laevis* delta 12-epoxygenase gene at high stringency hybridization and wash conditions, (see specification pages 17 and 18). A person having reasonable skill in the art would understand that the use of high stringency conditions as adequately teaching the instant claims.

As such, the skilled practitioner would recognize that applicant was in possession of the full scope of the claimed invention at the time of filing.

Applicant's specification has provided all the information necessary.

Accordingly, the rejection of claim 3 under 35 U.S.C. § 112, first paragraph is respectfully traversed.

4. Rejections under 35 U.S.C. §102(b) Hitz U.S. 5,846,784

The Examiner rejects claims 1 and 7-14 as allegedly being anticipated by Hitz et al. Applicants have amended the claims, obviating this rejection.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues that might be resolved by an interview or Examiner's amendment, the Examiner is invited to call Applicant's representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

Aamer S. Ahmed
Registration No. 58,958

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 ASA:MWE
Facsimile: 202.756.8087
Date: June 22, 2007

Please recognize our Customer No. 20277 as our correspondence address.